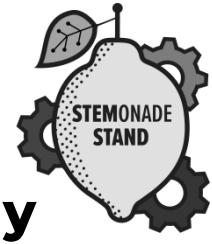

Coffee-Filter Chromatography

See how colors in markers separate to make new colors!

Kit contains:

- Plastic cup
- 4 Coffee filters
- Thin dowel
- Small clothespin
- Black maker

You will need: water and other markers (optional).

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INSTRUCTIONS

(1) Fill the cup with water to the red line.

(2) Use a marker to draw a circle on the coffee filter, around the middle circle part. Black marker works best (**Note:** marker might bleed through to the table below. Put a piece of paper underneath if it's a concern).

(3) Fold the coffee filter in half, then in half again, then in half again.

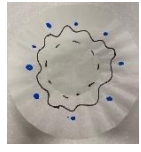
(4) Use the clothespin to attach the wide part of the folded coffee filter to the dowel. The point of the coffee filter should be just barely in the water.

(5) What do you think will happen? Patiently observe what happens to the marker as the water moves up the coffee filter. When you're done, open it up for some amazing patterns!

TRY THIS!

You have several coffee filters to try the experiment multiple times. A few ideas to try:

- Try different color markers.
- If you have different types/brands of markers, some work better than others.
- Try making two lines with different colors and see how they blend.
- Draw a wavy line, or dotted line, or something else and see what happens then.



WHAT'S GOING ON?

Chromotagraphy deals with separating mixtures into parts. Your marker's colors separate as the water moves up the coffee filter because the marker's ink is made of several different dyes. The different dyes separate at different speeds, depending on the size of the molecules that make them up.

SCIENCE IN ACTION

Scientists use chromotography in lots of different ways! They can make chromatograms of fall leaves to show how they change color in fall. Chromatography can also be used by art experts to determine original paint pigments when restoring an old, faded painting. Crime scene investigators sometimes use chromotography to analyze ink or other substances.

www.acs.org/content/dam/acsorg/education/outreach/kidszone/kids-zone-investigate-with-chromatography.pdf

www.adabofgluewilldo.com/kid-made-chromatography/

Books About Colors & Chromatography

- *What Can Colors Do?* by Liz Yohlin Baill
- *Magic Colors* by Patrick George
- *Mixtures and Solutions* by Carol Ballard
- *Smithsonian 10-Minute Science Experiments* by Steve Spangler